A REVIEW OF THE AMERICAN CROSSBILLS (LOXIA) OF THE L. CURVIROSTRA TYPE.

By Robert Ridgway.

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Having long suspected the existence of two forms of the Red Crossbill in the United States, besides the Mexican race (*L. mexicana* Strickl.) which occurs just within our borders in Southern Arizona (and perhaps also in New Mexico), I was not surprised to find this conviction fully confirmed by a fine series of specimens presented to the National Museum by Captain Chas. E. Bendire, U. S. A., and obtained by him at Fort Klamath, Oregon, during the winter of 1882–83. The form under consideration being unquestionably distinct from both *L. americana* and *L. mexicana*, as well as from the several Palæarctic races, and being, so far as I am able to discover, unnamed, I take great pleasure in dedicating it to Captain Bendire as a slight recognition of his very valuable services to North American ornithology.

I am at present inclined to consider all the Red Crossbills that I have seen, from whatever country, as races of *Loxia curvirostra* Linn.; and therefore must prefer for the bird under consideration a trinomial designation, as follows:

Loxia curvirostra bendirei.

BENDIRE'S CROSSBILL.

Loxia americana (part) Baird, B. N. Am., 1858, 426.

Curvirostra americana (part) Cooper, Orn. Cal., i, 1870, 148.

Loxia curvirostra var. *americana* Hensh., Rep. Orn. Wheeler's Exp. 1873 (1874), 79 (Ft. Garland, Colorado).—(?) Bendire, Proc. Bost. Soc. N. H., xix, 1877, 116 (Camp Harney, Oregon, in winter).

Loxia curvirostra var. *mexicana* Ridgw., Bull. Essex Inst., v, Nov., 1873, 181, 189 (Colorado).

Loxia curvirostra mexicana Minot, Bull. Nutt. Orn. Club, v, 1880, 229 (Colorado).

Loxia curvirostra bendirei Ridgw., MS.

HABITAT.—Chiefly the western mountain regions of the United States, from Colorado to Oregon and California; in winter, not uncommon in Eastern United States (Massachusetts, Maryland, etc).

SUBSPECIFIC CHARACTERS.—Differing from *L. curvirostra americana* in decidedly larger size. ♂: wing, 3.55–3.80 (average, 3.68); tail, 2.20–2.45 (2.34); culmen, .65–.78 (.71); depth of bill, .40–.45 (.42); gonys, .42–.50 (.47); tarsus, .62–.72 (.67); middle toe, .50–.60 (.57). ♀: wing, 3.40–3.60 (3.50); tail, 2.20–2.30 (2.23); culmen, .65–.70 (.67); depth of bill, .35–.40 (.39); gonys, .40–.55 (.46); tarsus, .60–.69 (.66); middle toe, .55–.58 (.56).

This race is about as much smaller than *L. curvirostra mexicana* as it is larger than *americana*. In fact, it may be considered as being about intermediate, so far as size is concerned. Compared with the *L. curvirostra*, it is found to differ in the following respects: (1) much brighter coloration; (2) shorter wing and tail; (3) shorter culmen combined with longer gonys, the mandible being proportionally stronger; and (4) more slender bill. *L. curvirostra mexicana* has the mandible still stouter, compared with the maxilla, and is, besides, much larger in all its measurements.

There is so little uniformity in coloration in the various races of this species that color alone is of little value as a race character. In the series of the present form, upon which these remarks are based, there are specimens which agree minutely in colors with examples of both *mexicana* and *americana*. In fact, it seems that *full-plumaged* specimens of the three American races are constantly much brighter than the two European forms (*L. curvirostra* and *L. curvirostra pityopsittacus*), although it should be stated that, with one exception, the males of the latter which have been examined are mounted museum specimens, and possibly much faded. However this may be, they certainly do not approach in richness of plumage American specimens of average intensity of coloration. There are two specimens, however, in the series before me which differ considerably from others in the tint of the red, which, on the lower parts, is of a

purplish cast, much like a dilute tint of "Ruben's madder," the middle of the belly and the anal region fading into white. These specimens are Nos. 94,877 and 94,887, from Fort Klamath, Oregon, December 11, 1882, (Capt. Bendire, coll.), and resemble so closely two adult males from northern Japan (Nos. 91,432 and 91,433, Tate-Yama, P. L. Jouy, coll.), as to be distinguished only with great difficulty.. Taking, however, No. 94,877, in which the resemblance to the Japanese birds is closest, and comparing with both the latter, the following differences are observable: The upper parts are decidedly darker, the pileum in the Japanese specimens being of the same pale purplish red as the color of the breast, while the brighter color of the rump corresponds closely to that of the flanks. In the Fort Klamath specimen, on the other hand, the pileum is much darker than the breast (being nearly the same color as the back), while the red of the rump is very much more intense than that on the flanks.

Three females from Japan are, however, practically indistinguishable from as many of the same sex from eastern Oregon (Fort Klamath, December, 1882, Capt. Bendire). In fact, were it not for the difference of habitat, these female Japanese Crossbills might well be regarded as identical with the larger North American form.*

*The Japanese Crossbill has been referred to *L. albiventris* Swinhoe, but the description (Proc. Zoöl. Soc. Lond., 1870, p. 437) indicates a bird "like in color to *L. curvirostra*, but differing from all the known species in having the abdomen and under tail-coverts white, the latter with large central arrow-head brown spots. Under quills, whitish. Length 6 inches; wing $3\frac{5}{8}$; tail 2; tip of wing to end of tail, 6. Iris brown; bill brown, light horn-color along the tomia. Legs, toes, and claws blackish brown, washed with pink on the soles." Habitat, southeastern China. Should the phrase "like in color to *L. curvirostra*" be correct, the Crossbill of middle Japan certainly is not identical with that of China, for the Japanese specimens, both male and female, which I have examined are far more like *L. curvirostra bendirei* than *L. curvirostra* (*vera*). At any rate, even should they prove on comparison to be the same, the name *L. albiventris* is pre-occupied, having been bestowed in 1804 by Hermann (Obs. Zool., p. 205) upon a species of *Munia*. Regarding the Japanese birds as distinct from *L. curvirostra* proper (and leaving the question of their relationship to the Chinese bird in abeyance), it becomes necessary to give them a new name. I therefore propose to call them—

Loxia curvirostra japonica NOBIS. SUBSPECIFIC CHARACTERS.—Differing

In connection with the present subject, some remarks upon the other races of *L. curvirostra* (or supposed to be referable to that species) may not be unacceptable, the observations in question being based chiefly on specimens contained in the National Museum collection.

L. curvirostra pityopsittacus.—There are before me two adult males and one adult female of this robust species or race. These resemble most nearly, among the American forms, *L. mexicana*, but are decidedly larger in all their measurements, the bill especially being much higher; the mandible is broader at the base, though proportionally much shorter. The colors are similar but not so bright. The measurements of this form, as compared with *L. mexicana* and *L. curvirostra*, its nearest allies, are given in a table at the end of this article.

In Yarrell's "History of British Birds," fourth ed., part xi, page 210, the comparative measurements of *L. pityopsittacus* and *L. curvirostra*, apparently quoted from Dresser's "Birds of Europe," are given, in substance, as follows:

	Total length.	Wing.	Tail.	Tarsus.	Culmen.	Height of bill at base.	Width of mandible.
L. pityopsittacus	6.30–7.00	4.00–4.30	2.70–2.80	.75	.90	.60	.50
L. curvirostra	5.70–6.00	3.70–3.90	2.50–2.70	.60–.65	.75–.85	.50	.37–.40

from *L. curvirostra* (*vera*) in having the red of a fine rosy or madder-lake tint, the dimensions somewhat smaller. Female much grayer than that of *curvirostra*. *Dimensions*.—♂: wing 3.60–380 (3.70); tail 2.30–2.40 (2.35); culmen .70; depth of bill .45–.48 (.46); gonys .45–.48 (.46); tarsus .65–.70 (.67); middle toe .60. ♀: wing 3.60–3.70 (3.66); tail 2.20–2.35 (2.28); culmen .68–.70 (.69); depth of bill .42–.45 (.44); gonys .45–.49 (.46); tarsus .65–.70 (.68); middle toe .57–.58.

NOTE.—Since the above was written, specimens of a red crossbill have been received at the National Museum from Hakodadi (Nos. 91,386, ♂ ad., Feb., and 91,387, ♀ ad., Feb.), which are in every respect similar to European examples of *L. curvirostra*. It would therefore appear that while the form inhabiting the middle or main island of Japan is a distinct local race, that found in the northern island is identical with the European race.

L. curvirostra (*vera*).—Of this species or race I have for comparison only three adult males and two adult females. There is not the slightest difficulty in distinguishing any of these examples from *L. pityopsittacus*, or from any of the numerous American specimens. As to the latter, the resemblance of *L. curvirostra* is far nearest to *L. mexicana;* but the latter has a much more intensely red coloration, has the wing and tail (on the average) decidedly longer, and the mandible decidedly longer and stouter, both absolutely and in proportion to the upper mandible.

L. curvirostra americana.—When Wilson characterized his "*Curvirostra americana*," he thus separated a North American Crossbill differing from the common European species (*L. curvirostra*), among other characters, in "being nearly one-third less." This statement of the difference in size is certainly not exaggerated. Of this form—which is the prevailing one in northern and eastern North America—I have examined in this connection twenty-four males, and twenty-three females. The characters presented by this series are very uniform, scarcely a single specimen being sufficiently larger than the average to render its position doubtful.

Compared with the provokingly small series of *L. pityopsittacus* and *L. curvirostra* which is available for the purpose, all the full-plumaged males of *L. americana* are decidedly brighter in coloration.* There is, however, much individual variation in color.

The brightest colored examples are Nos. 83,368, District of Columbia (spring of 1864; C. Drexler), and 78,186, Santa Cruz, California (W. A. Cooper), which are much alike, except that the former has the centre of the abdomen, hinder flanks, and anal region a rather deep, dull, grayish brown tinged with red, whereas in the latter these parts are dull grayish white. Both have the red of a deep "dragon's-blood" tint above, deepening on the head into a tint intermediate between "Indian-red" and crimson (but

* It is true that this is directly contrary to the experience of Messrs. Sharpe and Dresser, who state (Birds of Europe, pt. xiv) that "the adult male is generally duller than *L. curvirostra*, the red approaching to dirty orange;" but their observation was evidently based upon specimens not in perfect plumage.

much nearer the former), the rump much brighter, and inclining to clear, dull vermilion. The lower parts are bright "dragon's-blood-red," with a tinge of crimson. The wings are dark sepia-brown, the feathers very indistinctly edged with dull reddish-brown.

No. 83,366, from Utica, New York (winter of 1869; J. Davis), is very similar, but the red is somewhat lighter, inclining more to a dull vermilion shade. The centre of the abdomen adjoining the anal region is dull grayish white.

The darkest colored example is No. 86,893, Garrison's, New York (Dec. 30, 1874; T. Roosevelt), in which the red is of a dark madder-brown cast, the rump more brilliant, or of a dark brownish vermilion tint. The wings and tail are uniform dark sepia, without reddish edgings; the scapulars uniform dark sepia, and the back similar, but strongly tinged with dark red.

No. 93,630, from Arizona, has the red very brilliant, the whole pileum and nape, rump and lower parts being dull scarlet.

There is, in fact, so much individual variation in color that scarcely two specimens are closely alike.

The following measurements represent the averages of all the adult specimens of the several races which I have been able to examine. The males and females are given separately; and it will be noticed that *pityopsittacus* and *americana* represent the extremes of size, the others being intermediate in the order given. *L. himalayana* HODGS. is said to be smaller than *americana*, but I have seen no specimens.

Males.

	Wing.	Tail.	Culmen.	Gonys.	Depth of bill.	Tarsus.	Mid. toe.	Number of specimens.
L. pityopsittacus	4.10	2.60	.92	.60	.60	.75	------	2
" mexicana	3.99	2.54	.78	.53	.49	.70	.63	8
" curvirostra	3.88	2.48	.79	.46	.48	.68	.55	3
" japonica	3.70	2.35	.70	.46	.46	.67	.60	2
" bendirei	3.68	2.34	.71	.47	.42	.67	.57	21
" americana	3.38	2.12	.60	.41	.35	.62	.53	24

Females.

L. pityopsittacus	3.90	2.60	.75	.50	.58	------	------	1
" mexicana	------	------	------	------	------	------	------	(None.)
" curvirostra	3.75	2.35	.71	.49	.45	.70	------	2
" japonica	3.66	2.28	.68	.46	.44	.68	.57	3
" bendirei	3.50	2.23	.67	.46	.39	.66	.56	11
" americana	3.31	2.08	.59	.44	.37	.63	.52	23

NOTE.—Since the above was written, Mr. Wm. Palmer has kindly loaned me for examination three adult males and two females, obtained at Escanaba, Michigan, in June, 1883. These all belong to *americana*, and doubtless represent the form which breeds in that region.

NOTE ON THE ANAS HYPERBOREUS, PALL., AND ANSER ALBATUS, CASS.

BY ROBERT RIDGWAY.

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While there can be no doubt that Mr. Cassin did right in separating the smaller North American Snow Geese from the larger ones, it is very evident that he committed an error in giving the smaller form a new name. Pallas's *Anas hyperboreus* was based upon the birds of this species occurring in eastern Siberia; and on referring to his description it is perfectly clear that the Siberian specimens are identical with those from Alaska and other western portions of North America, which represent the so-called "*A. albatus*" of Cassin. This smaller form of the Snow Goose is not only the typical race, but has by far the most extensive distribution, so far, at least, as the United States are concerned, and is decidedly the more common one in most collections.* The larger race is the *Anas nivalis* of Forster (Philos. Trans., lxii, 1772, p. 413), and may therefore be called *Chen* (or *Anser*) *hyperboreus nivalis* (FORST). The habitat of this large race is the region about Hudson's Bay (the breeding grounds unknown, however), and southward in winter chiefly along the Atlantic coast of the United

* The National Museum possesses only three specimens of the larger form, but has received at least ten times that number of the smaller race.